New Matter

The Patent Act forbids the introduction of new matter in the present application in two ways. First, 35 USC § 251 states that "[n]o new matter shall be added in a reissue application." Second, 35 USC § 132 bars new matter from being added by amendment. *See 35 USC § 132* ("[N]o amendment shall introduce new matter into the disclosure of the invention."). At the same time, then, an applicant cannot add claim limitations or elements which do not find support, either explicitly or inherently, in the specification or the drawings.

The Examiner has enunciated the standard for identifying new matter as "what did the original disclosure actually teach and specifically state." Office Action of 12/07/00, p. 9. Applicants respectfully traverse this statement of the law regarding new matter.

The Examiner derides declarants Berg and Liu for failing to understand the proper standard for determining new matter in a patent application. The Examiner apparently misconstrues the purpose of the declarations attached to applicants' previous response filed November 16, 2000. The declarations of various experts were marshaled not to instruct the Examiner on the legal standard for new matter and on patent examination. Instead, the declarations were marshaled to provide factual evidence as to the state of the art at the time the parent Bruinsma patent application was filed. The declarants' statements concerning what was obvious to one of ordinary skill in the art as of that time are pertinent to the scope of the written description and enabling teaching of the Bruinsma patent disclosure. The declarants' statements also are directed to an understanding of copied Brinker claim limitations and added claims applicants seek by way of reissue.

The Examiner has improperly rejected the claims on the basis of a failure of applicants to literally describe in the specification each and every claimed embodiment. The rejections are improper because they rely on application by the Examiner of the wrong legal standard for new matter.

"The fundamental inquiry [of whether new matter has been introduced by amendment] is whether the material added was inherently contained in the original application." *Schering Corp. v. Amgen, Inc.*, 55 USPQ2d 1650, 1653 (Fed. Cir. 2000). *See also Litton Sys., Inc. v. Whirlpool Corp.*, 221 USPQ 97, 106 (Fed. Cir. 1984).

The Federal Circuit has explained that the "new matter prohibition is closely related to the adequate disclosure requirements of [35 USC §112]." *Schering*, 55 USPQ2d at 1653. *See also Pennwalt Corp. v. Akzona Inc.*, 222 USPQ 833, 836 (Fed. Cir. 1984). The applicants must therefore show that their original disclosure supports the amended matter to

avoid a new matter rejection. *Id.; Kolmes v. World Fibers Corp.* , 41 USPQ2d 1829, 1832 (Fed. Cir. 1997).

It is the Examiner's position that the subject matter of the reissue claims is not supported because certain terms (e.g. "optical") do not appear in the specification. Applicants note that a strikingly similar situation was encountered by the Federal Circuit this year in *Union Oil Co. of California v. Atlantic Richfield Co.*, 54 USPQ2d 1227 (Fed. Cir. 2000). Applicant there had claimed certain chemical compositions, for which no literal written description appeared. *Id.* at 1237. The court noted that there was "surely a description of most of the particular *claim limitations* of the various claims, but that is not the same as a description of a *specific composition* described by a particular selection of those characteristics." *Id.* In a case whose facts closely parallel the present reissue prosecution, it was stated that the proper analysis is "whether the specification *directs or guides one skilled in the art* to the subject matter claimed." *Id. See also Fujikawa v. Wattanasin,* 39 USPQ2d 1895, 1904 (Fed. Cir. 1996)(emphasis added).

In examining the application for subject matter support, the Examiner must consider both the explicit and the inherent teachings of applicants. *See In re Lukach,* 169 USPQ 795 (CCPA 1971) (analyzing both methods); *Tronzo v. Biomet Inc.*, 41 USPQ2d 1403, 1408 (D. S. Fla. 1996) ("This test can be satisfied either by an 'express' or an 'inherent' disclosure of the invention claimed.").

Because the applicants speak to those skilled in the art, they need not explain every detail of their invention nor of the relevant art. *Howath,* 210 USPQ at 691 (CCPA). It is well settled that "[n]ot every last detail is to be described, else patent specifications would turn into production specifications, which they were never intended to be." *In re Vaeck,* 20 USPQ2d 1438, 1445 (Fed. Cir. 1991); *In re Angstadt,* 190 USPQ 214, 218 (CCPA 1976); *In re Gay,* 135 USPQ 311, 316 (CCPA 1962).

It is also well settled that patent applicants are not required to disclose every species encompassed by their claims, even in an unpredictable art. *Vaeck,* 20 USPQ2d at 1445, quoting *Angstadt,* 190 USPQ at 218.

Applicants need not "describe the claim limitations exactly, but only so clearly that persons of ordinary skill in the art will recognize from the disclosure that appellants invented processes including those limitations." *In re Wertheim,* et al., 191 USPQ 90, 96 (CCPA 1976). *See also In re Smythe,* 178 USPQ 279, 284 (CCPA 1973). "[P]recedent establishes that although the applicant 'does not have to describe exactly the subject matter claimed, . . . the description must clearly allow persons of ordinary skill in the art to recognize that [the

applicant] invented what is claimed.'" *In re Daniels*, 46 USPQ2d 1788, 1790 (Fed. Cir. 1998), quoting *In re Gosteli*, 10 USPQ2d 1614, 1618 (Fed. Cir. 1989).

The guidance of the Federal Circuit as to inherency in the teaching of the application is useful here. *Kennecott Corp. v. Kyocera Intl. Inc.* 5 USPQ2d 1194 (Fed. Cir. 1987). There the court stated that the legal determination of sufficiency of the disclosure depends on the particular facts, *id.* at 1197. The court then reviewed a group of cases involving chemical inventions. *Kennecott* noted that the earlier and later applications need not use identical words, so long as the subject matter claimed in the later application is shown in the earlier application. *Id.*, citing *In re Edwards*, 196 USPQ 465, 467 (CCPA 1978). Further, the court cited with approval *In re Reynolds*:

> By disclosing in a patent application a device that inherently performs a function, operates according to a theory, or has an advantage, a patent applicant necessarily discloses that function, theory, or advantage *even though he says nothing concerning it.* (Emphasis added.)

Reynolds, 170 USPQ 94, 98 (CCPA 1971) (considering whether words describing a function that was inherent in the claimed product could be added to the specification by amendment).

"The test for inherency is whether a person skilled in the relevant art, reading a parent application, would have found the CIP disclosures in question to be inherent in the disclosures of the parent and would not have to undertake any independent experimentation in order to do so." *Acme Highway Prod. Corp. v. The D. S. Brown Co.*, 167 USPQ 129, 132-33 (CA 6 1970).

Similarly, new matter was deemed to be "not introduced by amendment, continuation applications or continuation-in-part applications which merely clarify or make definite that which was expressly *or inherently* disclosed in the parent application or which conforms the specification to matter originally disclosed in the drawings or claims." *Stearn v. Superior Distr. Co.*, 215 USPQ 1089, 1093 (6th Cir. 1982); *see also Cardinal of Adrian, Inc. v. Peerless Wood Prods., Inc.*, 185 USPQ 712, 715-16 (6th Cir. 1975); *Triax Co. v. Hartman Metal Fabricators, Inc.*, 178 USPQ 142, 145-47 (2d Cir. 1973); *Technicon Instr. Corp. v. Coleman Instr., Inc.*, 150 USPQ 227 (N.D. Ill. 1966), *aff'd*, 155 USPQ 369 (7th Cir. 1967). (Emphasis added.)

Finally, even the USPTO's MPEP seems to follow this test for new matter. *Accord* MPEP §§ 706.03(o), 1411.02 (raising/settling doubt as to the "possession of the claimed invention" at the time of filing). Missing from the MPEP, however, are examination

guidelines based upon these well-established principles of inherency. Of course, it is the applicable patent statutes, regulations and case law that ultimately must guide the Examiner.

In the present reissue application, applicants have shown support for the copied and added claims 28 through 77 in terms of what the application teaches one of ordinary skill in the art. Five experts (five "Doctors", as the Examiner refers to them) explain--under penalty of perjury--what one of ordinary skill in the art would have understood to be the scope of the Bruinsma application. The experts explain--under penalty of perjury--the meaning of certain terminology recited in certain claims of the Brinker patent with which applicants seek an interference.

The Examiner has acknowledged the proffered declarations but has essentially ignored them (with one notable exception). The Examiner has done so without contradiction and without citation to any authority for his refusal to take official notice of their sworn contents. Applicants submit that the burden is on the Examiner to overcome the expert testimony of record, and that the Examiner has failed to do so. The present case is very different from one where applicant proffered no competent evidence as to what the application taught by way of alternative embodiments. *Cf. In re Wilder*, 222 USPQ 369 (Fed. Cir. 1984) (reissue applicant relied merely on broad title and drawing description unsuccessfully to argue claims to both synchronous embodiments described and asynchronous embodiments not described).

Applicants illustrate the error of the Examiner's way of dealing with new matter by reference to one particular species limitation, "cationic", that the Examiner would read into every claim of a reissue patent. Applicants submit that the improper legal standard applied by the Examiner in this case has led to the wrong conclusion in this particular as well as others the subject of the Examiner's rejection of applicants' pending reissue claims.

The original Bruinsma patent inherently teaches the use of any suitable surfactant, by its reference to a particular surfactant type, i.e. cationic, as being merely "preferred." (Column 7, lines 40-52.) Thus, applicants are entitled in reissue to claim more broadly use of a precursor solution containing a surfactant mistakenly and unnecessarily limited to a "cationic surfactant." The Examiner has already determined that the Bruinsma patent mistakenly claimed less than applicants were entitled to claim--that is why the reissue application has proceeded thus far. Applicants have drawn claims more broadly to any surfactant, based upon the suggestion of the original disclosure that surfactants other than cationic surfactants might alternatively be used.

Dr. Berg's expert testimony is that one of ordinary skill in the art on August 26, 1997 would have known from a reading of the Bruinsma patent application that other surfactants, e.g. anionic or non-ionic or amphoteric, can be employed usefully. (Dr. Berg Declaration at paragraph 9.) Dr. Berg bases his conclusion on the fact that other surfactants had already been used to make mesoporous powders, and he cites a highly regarded technical publication in support of this factual predicate. (*Id.*) The Examiner has not questioned the relevance or content or credibility of the technical publication on which Dr. Berg relies. The Examiner has not questioned the qualifications or reasoning of Dr. Berg in respect of his conclusion. The Examiner has not cited any contradictory scientific authority. The Examiner has simply ignored Dr. Berg's considered conclusion regarding what one of ordinary skill would have surmised from the Bruinsma patent disclosure.

The Examiner has ignored the expert conclusion because the Examiner has applied the wrong legal test for new matter. The Examiner thinks that "literal" or "specific" support for every claim term or element must be found in the four corners of the patent document. Thus, the Examiner ignores teachings that *inhere* in the disclosure by virtue of what is known to one of ordinary skill who is the hypothetical reader of a patent disclosure. The Examiner thus ignores the controlling case law regarding new matter as set forth by the Federal Circuit Court of Appeals or its predecessor, the CCPA. See the rule of law set forth in, for example, *Howath*, *Peters*, *Schering*, *Union Oil*, *Vaeck*, *Daniels*, *Gosteli* and *Kennicott*, an applied by the various circuit courts of appeal in, for example, *Acme Highway* and *Stearn*.

As is pointed out above, the decisions in those cases require the new matter and commensurate-in-scope inquiry to embrace--not to ignore--that which is *inherent* in the teaching of a patent disclosure. The inquiry necessarily takes into account what would have been known to or readily surmised by one ordinarily skilled in the art at the patent application filing date. Applicants respectfully request reconsideration by the Examiner of his ill-advised new matter and commensurate-in-scope position.

Recapture of Surrendered Subject Matter

The Examiner relies upon MPEP §§ 1402, 1450-51, and cases cited therein, in rejecting claims 28-31 as improperly presented under the rule against recapture. Applicants note that MPEP § 1402 addresses determinations of proper grounds for filing a reissue application under 35 USC § 251. Of course, this determination has already been made in applicants' favor, as evidenced by claims 32-77 pending and under examination in the present reissue application.

Applicants have never disputed that the failure to timely file a divisional application drawn to the non-elected species of the parent application does n t constitute error under 35 USC § 251. *Accord MPEP §§ 1402, 1450.* Applicants respectfully submit that the Examiner has not examined claim 31 at any time subsequent to applicants' amendment thereto filed July 14, 2000. If the Examiner were to examine claim 31, as amended, the claim would be understood to be a product-by-process claim that is properly presented in the present reissue application featuring process claims of similar scope and content.

As has been stated in each of applicants' responses, claim 31 was amended to fall within original Group I claims elected in the parent application. Product-by-process claim 31 does not coincide with non-elected product claim 28 of the parent application. Applicants respectfully submit that only where "the reissue application presents claims to species not claimed in the original patent" should the "added claims ... be rejected ..." MPEP § 1450 (7th ed., Rev. 1 (Feb. 2000)). Because claim 31 would properly be included in original Group I, it does not embody surrendered subject matter, making the application of the rule against recapture improper at least as to claim 31. Accordingly, applicants respectfully submit that the Examiner's refusal to examine claim 31 based on the rule against recapture should be withdrawn and that examination of claim 31 on its merits should proceed immediately.

Applicants' undersigned counsel will telephone the Examiner upon his receipt of these remarks to discuss them and, hopefully, to reach agreement on the issues briefed herein.

Respectfully submitted,

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Date: December 29, 2000

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I certify that the foregoing Response is being transmitted via facsimile to Examiner Marcantoni at Group Art Unit fax number 703-305-5408 on this 29th day of December, 2000.

Heather Kulin

Serial No. 09/481,988

VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Claims

Claims 1-27 are allowed.

40. (Twice amended) A method of making a mesoporous film on a substrate, the method comprising the steps of:

(a) combining a silica precursor with [a water and] an aqueous solvent, [a] an acid catalyst and a cationic surfactant into a precursor solution;

(b) dispensing said precursor solution [on] onto the substrate;

(c) forming a film by [rapid] evaporation of the [solution on the substrate] solvent in less than approximately 5 minutes; and

(d) heating the film on the substrate to a temperature sufficient to decompose the surfactant, thereby producing a mesoporous film on the substrate.

Claims 42-57 are canceled.

58. (Twice amended) A process to form mesostructured films, comprising:

(a) preparing a precursor sol containing a soluble source of a silica-based metal oxide, [water, alcohol] an aqueous solvent, surfactant and acid [or base] catalyst[, wherein the surfactant concentration c_o does not exceed the critical micelle concentration and the surfactant is present as free surfactant]; and

(b) depositing the precursor sol on a substrate wherein evaporation of [alcohol] solvent and water in less than 5 minutes causes the formation of said mesostructured films on the substrate surface.

59. (Amended) The process of claim 58 wherein the [the metal oxide, water and organic solvent form an aqueous solvent and where the aqueous solvent] aqueous solvent and the catalyst are provided in amounts that maintain a hydrolyzed precursor sol while avoiding gelation or precipitation.

60. (Amended) The process of claim 58 wherein the [precursor sol is a silica precursor sol] soluble source of silica is an alkoxide and wherein the surfactant and the soluble source of silica are in a mole ratio that is above a lower mole ratio that produces a non-porous silica phase and below an upper mole ratio that produces a lamellar phase.

Claims 61-68 are canceled.

69. (Amended) The process of claim [64] 58, wherein the surfactant includes a cationic surfactant.

70. (Amended) The process of claim [64] 58, further comprising the step of calcining said film at approximately [400°C] 450°C.

71. (Amended) The process of claim [64] 58, wherein the precursor sol is deposited on a substrate by spin coating.

Claims 72-77 are canceled.

78. (New) The process of claim 58, wherein said soluble source is an alkoxide precursor.

79. (New) A process to form a mesoporous structure, comprising:

(a) preparing a precursor sol containing a soluble source of a silicon or silicon-aluminum oxide, an alcohol and water solvent, surfactant, and acid catalyst, wherein said solvent is provided in an amount resulting in complete hydrolysis and said acid is in an amount to maintain a hydrolyzed precursor and to avoid gelation or precipitation in said precursor sol;

(b) forming the precursor sol into a preform;

(c) evaporating said solvent from the preform at a rate that forms a mesostructured material; and

(d) calcining the mesostructured material to form a mesoporous structure.

80. (New) The process of claim 79, wherein said precursor sol contains alcohol which is a byproduct of hydrolysis, and said mesoporous structure is a film.

81. (New) The process of claim 79, wherein said preform is a droplet, said alcohol is a byproduct of hydrolysis, and said sol is spray dried to form a powder.

82. (New) The process of claim 79, wherein said drying is preformed in less than 5 minutes.

83. (New) The process of claim 79, wherein said precursor sol contains dilutant alcohol, and wherein the mesostructure is a film.

84. (New) A process to form a mesoporous structure, comprising:

(a) preparing a precursor sol containing a soluble source of a silicon or silicon-aluminum oxide, an alcohol and water solvent, surfactant, and acid catalyst, wherein said solvent is provided in an amount resulting in complete hydrolysis and said acid is in amount to maintain a hydrolyzed precursor and to avoid gelation or precipitation in said precursor sol;

(b) forming the precursor sol into a preform;

(c) evaporating said solvent from the preform at a rate that forms a mesostructured material, wherein said mesostructured material contains surfactant and a silicate or aluminosilicate network; and

(d) calcining the mesostructured material to form a mesoporous structure.

85. (New) A process to form a mesostructure, comprising:

(a) preparing a precursor sol containing a soluble source of a silica-based metal oxide, water and alcohol solvent, surfactant and a catalyst; and

(b) evaporating said solvent in less than approximately 5 minutes to cause the formation of a mesostructure, wherein said mesostructure contains surfactant and a silicate network.

86. (New) The process of claim 79, wherein the said precursor sol contains alcohol which is a byproduct of hydrolysis, and wherein said mesostructure is a film.

87. (New) The process of claim 79, wherein said preform is a droplet, wherein said alcohol is a byproduct of hydrolysis, and wherein said precursor sol is spray dried.

88. (New) The process of claim 79, wherein said evaporating is performed in less than 5 minutes.

89. (New) The process of claim 79, wherein the surfactant includes a cationic surfactant and polyethelene oxide.

90. (New) The process of claim 79, wherein said soluble source of a silicon or silicon-aluminum oxide includes an alkoxide precursor.

91. (New) A process to form a mesostructure, comprising:

(a) preparing a precursor sol containing a soluble source of silica, a water and alcohol solvent, surfactant and a catalyst, and

(b) evaporating said solvent in less than 5 minutes to cause the formation of a mesostructure.

92. (New) The process of claim 91, wherein said solvent is evaporated in less than approximately 1 minute.

93. (New) The process of claim 91, wherein said solvent is evaporated in less than approximately 10 seconds.

94. (New) The process of claim 91, wherein the said precursor sol contains both dilutant alcohol and alcohol which is a byproduct of hydrolysis, and said mesostructure is a film.

95. (New) The process of claim 91, wherein said preform is a droplet, said alcohol is a byproduct of hydrolysis, and said sol is spray dried.

96. (New) The process of claim 91, wherein the mesostructure is silicon-iron oxide or silicon-aluminum oxide.

97. (New) The process of claim 91, wherein the surfactant comprises CTAC and polyethelene oxide.

98. (New) The process of claim 91, wherein the surfactant is cationic.

99. (New) A process to form mesostructured films, comprising:

a) preparing a precursor sol containing a soluble source of silicon metal-oxide, water, alcohol, a cationic surfactant, and acid catalyst, wherein the surfactant concentration is less than the critical micelle concentration; and

b) depositing the precursor sol on a substrate wherein evaporation of alcohol and water causes the formation of said mesostructured films on the substrate surface.

100 (New) The process of claim 99 wherein said film is used as a low dielectric constant interlayer or coating.

101 (New) The process of claim 99 wherein said film is used for energy storage, catalysis, thermal barriers, or environmental remediation.

102. (New) The process of claim 99 wherein said silicon-metal-oxide is silicon-aluminum oxide.

103. (New) The process of claim 99, wherein the sol is aged prior to film deposition to affect a change of the film microstructure.

104. (New) The process of claim 99 wherein the sol is aged for approximately 1 hour prior to film deposition.

105. (New) The process of claim 99, further comprising a step of calcining said mesostructured film on the substrate surface at approximately 450°C to form a mesoporous film.

106. (New) The process of claim 99 wherein said film exhibits an index of refraction of between approximately 1.14 and approximately 1.44.

107. (New) The process of claim 99 wherein the precursor sol is deposited on a substrate by drawing, squeegeeing, spraying or spin-coating.

108. (New) The process of claim 99 wherein said mesostructured films are identified by hexagonal XRD peaks diffraction patterns in the two theta range of approximately 2°-5.5°.

109. (New) The process of claim 40, wherein the film exhibits an index of refraction of between approximately 1.14 and approximately 1.44.

110. (New) The process of claim 58, wherein the films exhibit an index of refraction of between approximately 1.14 and approximately 1.44.

111. (New) The process of claim 79, wherein the mesoporous structure is a film and wherein the film exhibits an index of refraction of between approximately 1.14 and approximately 1.44.

112. (New) The process of claim 85, wherein the mesoporous structure is a film, and wherein the film exhibits an index of refraction of between approximately 1.14 and approximately 1.44.

113. (New) The process of claim 86, wherein the mesostructure is a film, and wherein the film exhibits an index of refraction of between approximately 1.14 and approximately 1.44.

114. (New) The process of claim 92, wherein the mesostructure is a film, and wherein the film exhibits an index of refraction of between approximately 1.14 and approximately 1.44.

new matter

115. (New) The process of claim 99, wherein the films exhibit an index of refraction of between approximately 1.14 and approximately 1.44.

new matter